

AMPLION "RADIOLUX" A.C. SUPERHET

Circuit.—An H.F. valve, VP4A met. (V.1) is coupled to the aerial by a tuned secondary transformer. A balancing condenser for aerial trimming is included in the aerial lead. Bias is partly fixed and partly obtained from the A.V.C. line. Visual tuning is provided by a neon indicator in the H.T. lead.

Auto coupling is used to the next valve, an F.C.4 (V.2), combined first detector oscillator. This has the reaction tuning in the grid of the oscillator section. Bias for the oscillator is by cathode resistance, and for the pentode section, by cathode resistance and A.V.C.

A "straight" condenser is used for the oscillator, and both padding and tracking condensers are included for the M.W. and L.W. wavebands.

Coupling to the next valve is by band-pass I.F. transformer (frequency 110 k.c.).

The second detector valve, SP4 met. (V.3.) is an anode bend detector and the amplified H.F. remaining on the anode is by-passed to a Westector (W.1) to provide A.V.C. for V.1 and V.2. In the anode circuit R.13 forms an H.F. stopper, R.12 is the L.F. coupling resistance, and R.11 the decoupling resistance.

VALVE READINGS

No Signal

Valve.	Type.	Electrode.	Volts.	M.a.
1	V.P.4 A. met. (7)	anode ..	175	4.6
		aux. grid ..	90	
2	F.C.4 met. (7)	anode ..	172*	3
		aux. grid ..	80*	
		osc. anode ..	83*	
3	S.P.4 met. (7)	anode ..	60	4
		aux. grid ..	45**	
4	Pen.4VA(7)	anode ..	225	30
		aux. grid ..	240	4

* Valve stabilised by anode condenser.

** Entirely misleading voltage readings due to high resistances in circuit. Current reading is correct.

The output pentode, Pen.4VA (V.4), has its grid leak as a volume control potentiometer and is tone compensated by condensers across the primary of the output transformer. A screw switch allows the internal speaker to be disconnected when an external one is in use.

Mains equipment consists of: transformer with H.F. by-pass condenser; full-wave indirectly heated rectifier with the field coil in the positive H.T. lead; two dry electrolytic condensers.

Special Notes.—The pilot lamp 4.5-v. .3-amp type.

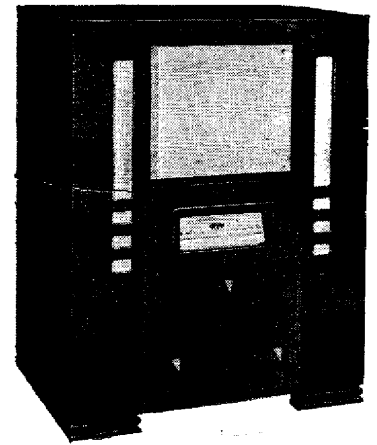
To reach the neon tube and the pilot lamps
(Continued on opposite page.)

CONDENSERS

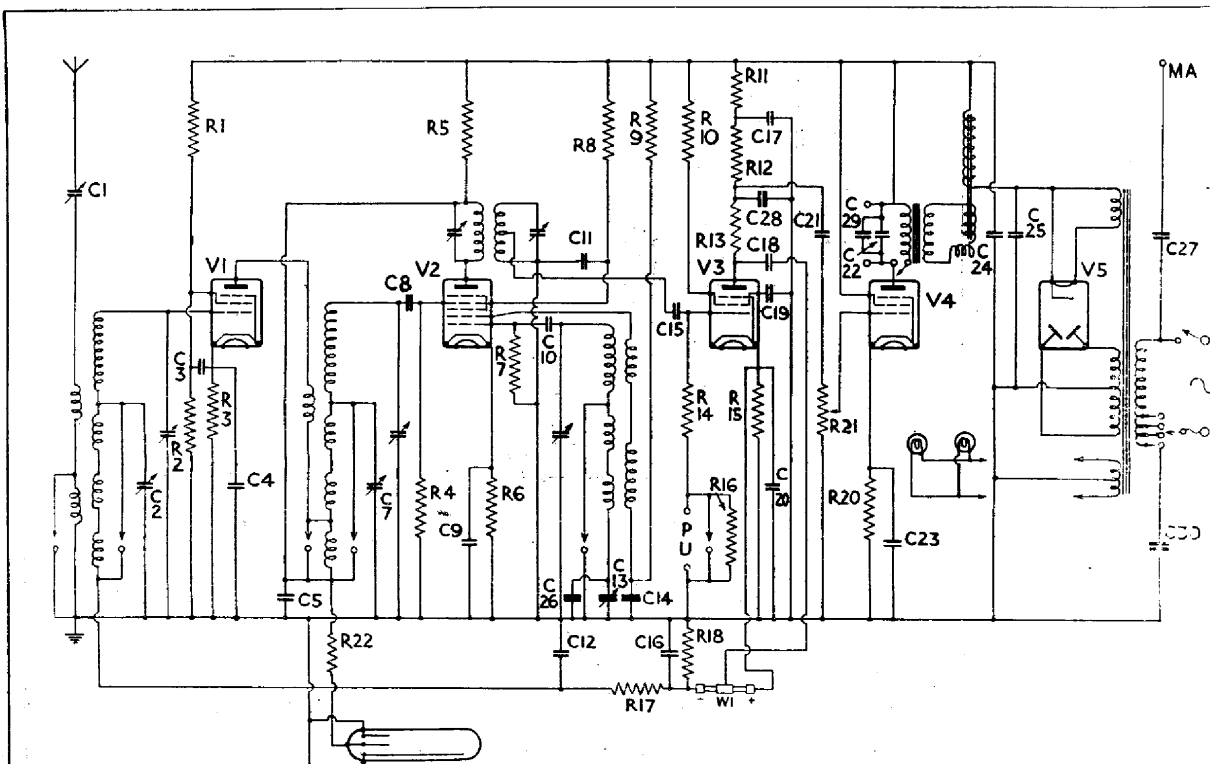
C.	Purpose.	Mfd.
1	Var. aerial adjustment ..	.0005
3	V1 aux. grid by-pass ..	.1
4	V1 cathode by-pass ..	.1
5	V1 anode decoupling ..	.5
8	V2 grid ..	.00005
9	V2 cathode by-pass ..	.1
10	V2 osc. grid ..	.001
11	V2 aux. grid by-pass ..	.1
12	A.V.C. line by-pass ..	1
14	V2 osc. anode decoupling ..	.1
15	V3 grid ..	.00005
16	H.F. by-pass from A.V.C. line ..	.001
17	V3 anode decoupling ..	.5
18	H.F. by-pass to Westector ..	.0005
19	V3 aux. grid by-pass ..	1
20	V3 cathode by-pass ..	25 el. (25 v.)
21	L.F. coupling V3, V4 ..	.1
22	Tone compensating V4 ..	.006
23	V4 cathode by-pass ..	10 el. (50 v.)
24	H.T. smoothing ..	8 el.
25	H.T. smoothing ..	4 el.
26	Fixed part of osc. L.W. track ..	.0005
27	Mains aerial ..	.0003
28	Part of V3, H.F. filter ..	.0003
29	In parallel with C22 ..	.01
30	H.F. by-pass from mains ..	.006

RESISTANCES

R.	Purpose.	Ohms.
1	Top part of V1 aux. grid ptr. ..	25,000
2	Lower part of V1 aux. grid ptr. ..	20,000
3	V1 cathode bias ..	200
4	V2 grid leak ..	2 meg.
5	V2 anode decoupling ..	8,000
6	V2 cathode bias ..	250
7	V2 osc. grid leak ..	50,000
8	Voltage dropping to V2 aux. grid. ..	50,000
9	Decoupling V2 osc. anode ..	75,000
10	Voltage dropping to V3 aux. grid. ..	1 meg.
11	V3 anode decoupling ..	50,000
12	V3 anode L.F. coupling ..	250,000
13	H.F. stopper ..	50,000
14	V3 grid leak ..	100,000
15	V3 cathode bias ..	5,000
16	Across P.U. connections ..	8,000 or 12,000
17	Decoupling A.V.C. line ..	250,000
18	A.V.C. rectifier load ..	100,000
20	V4 cathode bias ..	500
21	V3 grid leak (var. V.C.) ..	500,000
22	Voltage dropping to neon anode ..	8,000- 25,000

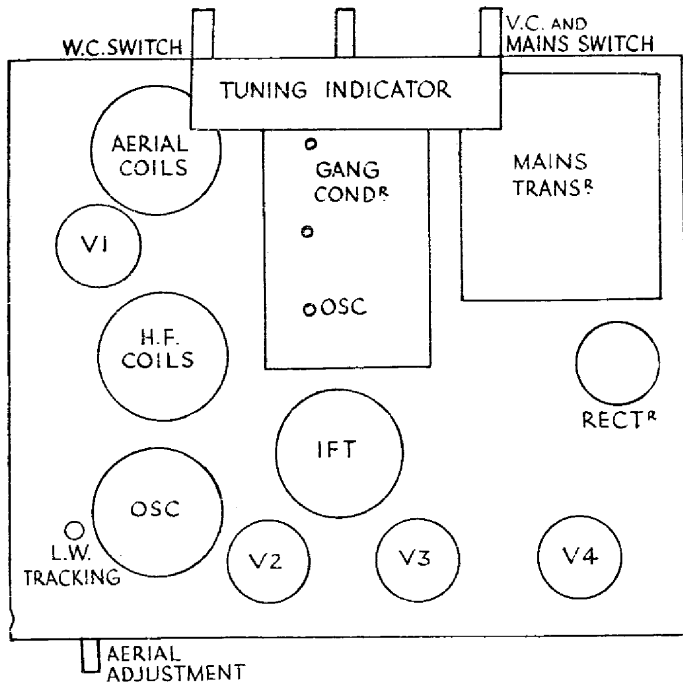


The Radiolux is a five-valve A.C. mains superhet marketed by Amplion (1932), Ltd. A neon tuning indicator is among the set's modern features.



Novel points in the Radiolux circuit include the use of a H.F. amplifier in front of the frequency changer and of a H.F. pentode as an anode-bend second detector.

AMPLION "RADIOLUX" SUPERHET (Continued)



remove two nuts holding the case to the gang condenser.

Quick Tests.—Between the terminals in the L.S. transformer and chassis (note that as the chassis is coated with an insulating varnish, contact should be made to one of the many tubular rivets):—

- Top (1) white, H.T. unsmoothed, 360 volts.
 (2) black, V.4 anode, 225 volts.
 (3) blank.
 (4) and (5) red, H.T. smoothed, 240 volts.

1 and 5 are field coil.

2 and 4 are primary of output transformer.

Removing Chassis.—Remove knobs (grub screw) and four holding screws underneath.

General Notes.—The trimmers of the I.F.

A point to note in connection with the top of the Radiolux is that to reach the pilot lamps and neon tube, two nuts holding the case must be removed.

transformer are not accessible for ordinary ganging.

The drive for the tuning dial is assembled as a complete unit. Should any trouble develop the unit should be removed and returned to the makers for repair.

To remove the dial, undo grub screw and two screws on front of tuning condenser.

The resistance and condenser panel appears more complicated than it really is. To replace a component snip the connecting wires on the other side of the perforated panel and pull the component free.

The A.V.C. components, consisting of the W.1 (or WMX12) Westector, C.12, R.17 and R.18, are mounted on the small assembly next the mains transformer.

Replacing Chassis.—Lay chassis inside cabinet, replace holding screws and knobs.

A strip of perforated Micalax forms an original condenser and resistance panel underneath the set (right).

